

IN THE CLAIMS:

Please cancel claims 1, 23, 29-32 and 42-58 without prejudice.

Please amend claims 2, 5, 7, 9, 10, 12, 13, 21, 25-26, 33, 37-38 and 41 as follows:

2. (Amended) An infrared imaging system [as set out in claim 1], comprising:

an infrared focal plane array comprising:

a plurality of infrared detector elements arranged in an array;

a readout circuit electrically coupled to the plurality of detector elements and comprising means for biasing the plurality of detector elements so as to provide separate detection signals corresponding to each detector element in the array, in response to incident infrared radiation and means for separately correcting offsets in the detection signals provided from the plurality of elements in the detector array to compensate for nonuniformities in the detector elements, wherein said means for correcting comprises:

a correction circuit including a plurality of parallel connected circuit elements; and

means for selectively electrically connecting said circuit elements into the detector readout circuit in response to said stored offset correction values; and

output means for providing the corrected detection signals as an output of the focal plane array;

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21 means for storing a plurality of offset correction values
22 corresponding to the plurality of detector elements; and
23 means for providing the offset correction values to said means
24 for correcting.

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1 ⁶ 5. (Amended) An infrared imaging system as set out in claim
2 [1]¹/₂, wherein said offset correction values are binary values
3 [separately] and wherein said means for storing comprises a digital
4 memory.

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1 ⁸ 7. (Amended) An infrared imaging system as set out in claim
2 [1]¹/₂, wherein said plurality of detector elements are arranged in
3 a plurality of rows and columns and wherein said means for
4 correcting comprises a separate offset correction circuit for each
5 column and wherein said means for providing said offset correction
6 values provides said offset correction values in a time multiplexed
7 manner to said means for correcting.

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1 ¹² 9. (Amended) An infrared imaging system as set out in claim
2 [1]¹/₂, wherein said array of detector elements and said readout
3 circuit are formed as a single monolithic integrated circuit chip.

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1 ¹⁰ 10. (Amended) An infrared imaging system as set out in claim
2 [1]¹/₂, wherein said plurality of detector elements comprise
3 microbolometer detector elements.

19.
1 12. (Amended) An infrared imaging system as set out in claim
2 [1]2, wherein said output means comprises one or more output
3 buffers.

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1 13. (Amended) An infrared imaging system as set out in claim
2 [1]2, wherein said focal plane array further comprises a
3 differential amplifier with first and second inputs wherein the
4 first input is electrically connected to the readout circuit so as
5 to receive the detection signals and wherein the second input is
6 connected to an adjustable reference voltage.

24
1 21. (Amended) An infrared imaging system as set out in claim
2 [1]2, further comprising means, coupled to said output means, for
3 analog to digital converting the corrected detection signals and
4 providing corresponding image data for each detector element.

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1 24. (Amended) An infrared imaging system [as set out in claim
2 23], comprising:
3 an infrared focal plane array comprising:
4 a plurality of infrared detector elements arranged in an
5 array;
6 a readout circuit electrically coupled to the plurality
7 of detector elements and comprising a plurality of readout cells
8 equal in number to the plurality of detector elements, means for
9 biasing the plurality of detector elements so as to provide
10 separate detection signals corresponding to each detector element

11 in the array, in response to incident infrared radiation and means
12 for separately correcting offsets in the detection signals provided
13 from the plurality of elements in the detector array to compensate
14 for nonuniformities in the detector elements, wherein said means
15 for correcting comprises an offset correction circuit in each
16 readout cell of the readout circuit and wherein each offset
17 correction circuit comprises a plurality of parallel connected
18 circuit elements and means for selectively electrically connecting
19 said circuit elements into the readout cell in response to the
20 stored offset correction value corresponding to said readout cell;
21 and
22 output means for providing the corrected detection
23 signals as an output of the focal plane array;
24 means for storing a plurality of offset correction values
25 corresponding to the plurality of detector elements; and
26 means for providing the offset correction values to said means
27 for correcting.

1 ¹⁵ 25. (Amended) An infrared imaging system as set out in claim
2 ¹³ 10, wherein said means for biasing comprises a fixed voltage source
3 coupled to said [microbolometers] microbolometer detector elements.

1 ¹⁶ 25. (Amended) An infrared imaging system as set out in claim
2 ¹⁵ 25, wherein said means for correcting comprises a plurality of
3 substantially constant current sources selectively coupled to said

1 voltage source and in parallel with said microbolometer detector
2 elements.

1 ²⁷ 33. (Amended) An infrared focal plane array [as set out in
2 claim 32], comprising:

3 a plurality of detector elements configured in a two
4 dimensional array; and

5 a readout circuit electrically coupled to said plurality of
6 detector elements and structurally integrated therewith, said
7 readout circuit comprising:

8 a sample and hold capacitor;

9 means for biasing the detector elements so as to provide
10 an analog detection signal from each detector element corresponding
11 to the infrared radiation incident thereon, wherein the analog
12 detection signal is a voltage signal provided at a sample node
13 coupled to the sample and hold capacitor; and

14 means for correcting the analog detection signal from
15 each detector element by a discrete offset correction and providing
16 a corrected analog detection signal, wherein the discrete offset
17 correction varies from detector element to detector element and
18 comprises an offset correction voltage added to, or subtracted
19 from, the analog detection signal, wherein said means for
20 correcting subtracts or adds a variable amount of charge from said
21 sample and hold capacitor to provide a corrected voltage signal at
22 said sample node, and wherein said means for correcting comprises
23 a plurality of capacitors connected between said sample node and a

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1 reference voltage and a corresponding plurality of switches coupled
2 in series with each respective capacitor and said reference
3 voltage, wherein said plurality of switches are selectively turned
4 on or off to provide a desired amount of discrete offset correction
5 for each detector element.

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1 37. (Amended) An infrared focal plane array [as set out in
2 claim 31], comprising:
3 a plurality of detector elements configured in a two
4 dimensional array; and
5 a readout circuit electrically coupled to said plurality of
6 detector elements and structurally integrated therewith, said
7 readout circuit comprising:
8 a sample and hold capacitor;
9 means for biasing the detector elements so as to provide
10 an analog detection signal from each detector element corresponding
11 to the infrared radiation incident thereon, wherein the analog
12 detection signal is a voltage signal provided at a sample node
13 coupled to the sample and hold capacitor; and
14 means for correcting the analog detection signal from
15 each detector element by a discrete offset correction and providing
16 a corrected analog detection signal, wherein the discrete offset
17 correction varies from detector element to detector element and
18 comprises an offset correction voltage added to, or subtracted
19 from, the voltage signal, wherein said means for correcting
20 subtracts or adds a variable amount of charge from said sample and

1 hold capacitor to provide a corrected voltage signal at said sample
2 node, and wherein said means for correcting comprises a plurality
3 of parallel connected constant current sources connected between
4 said sample node and ^areference voltage and a plurality of switches
5 corresponding to said plurality of constant current sources and
respectively coupled in series therewith.

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1 ~~30~~. (Amended) An infrared focal plane array as set out in
2 claim [31]²⁷~~30~~, wherein said readout circuit further comprises a
3 differential amplifier having first and second inputs, the first
4 input thereof coupled to said sample node and said second input
5 thereof coupled to a adjustable voltage source.

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1 ~~41~~. (Amended) An infrared focal plane array as set out in
2 claim [29]²⁷~~33~~ wherein said plurality of detector elements and said
3 readout circuit are formed as a single monolithic integrated
4 circuit wherein said readout circuit acts as a substrate for said
5 detector elements.